GENERIC RELATIONSHIPS OF TWO OBSCURE AUSTRALIAN THYSANOPTERA SPECIES DESCRIBED BY A.A. GIRAULT

LAURENCE A. MOUND[1] and DESLEY J. TREE[2]

[1]*Australian National Insect Collection, CSIRO, PO Box 1700, Canberra, ACT 2601 (Email: laurence.mound@csiro.au)*

[2]*Queensland Primary Industries Insect Collection (QDPC), Department of Agriculture, Fisheries and Forestry, Queensland, Ecosciences Precinct, GPO Box 267, Brisbane, Qld 4001 (Email: Desley.Tree@daff.qld.gov.au)*

Abstract

Two previously unrecognisable species of Australian thrips described by A.A. Girault are placed generically. *Girault ithrips* gen. n. is described to include *G. nigricoxa* (Girault), comb. n., originally placed in *Bagnalliella* Karny and currently included in *Haplothrips* Amyot & Serville, while *Azaleothrips perniger* (Girault), comb. n. is transferred from *Glyptothrips* Hood.

Introduction

The prolific Hymenoptera taxonomist A.A. Girault (Fig. 1) was also author of 139 species-group names from Australia in the order Thysanoptera. Most of these were based on one or few specimens, often badly damaged in slide mounting, and the descriptions usually comprised superficial four-line notes that were published privately (Gordh *et al.* 1979). More than half of Girault's thrips species have now been synonymised (ABRS 2014) and over the past 40 years the identity and biology of most of the valid species have been established through extensive field work across Australia (Mound 2014). There have remained three names that could not be applied to any known species. *Physothrips silvae* Girault is based on a specimen of which all that remains are some unrecognisable Thripidae fragments at the edge of a cover-slip. The other two, *Bagnalliella nigricoxa* Girault and *Glyptothrips perniger* Girault, are also each based on single specimens, both of which are poorly cleared with many details not visible. They are mounted under a single, damaged cover-slip (Fig. 1), together with fragments of several other species, including the type specimen of *Elaphrothrips apterus* Girault (= *Cryptothrips badius* Hood), two specimens of *Cryptothrips cybele* Girault (= *Cryptothrips acuticornis* Hood), specimens of *Haplothrips anceps* Hood and a female that possibly represents *Microcephalothrips abdominalis* (Crawford). It is technically impractical to remount these specimens because of the risk of losing some of the fragments. The objective here is to provide an appropriate genus-level position for *nigricoxa* and *perniger*. Full nomenclatural details of all Thysanoptera are available on ThripsWiki (2014).

Girault ithrips gen. n.

Type species *Bagnalliella nigricoxa* Girault, by present designation.

Diagnosis. Haplothripini with the head reticulate and the mesoeusternum anterior margin medially with a group of thick pale setae. Antennae 8-segmented, segment III with 1 sensorium, IV with 4 sensoria, V-VII with

pedicel parallel-sided, VIII broad at base. Head with vertex reticulate, maxillary stylets about one-third of head width apart (Fig. 2), maxillary bridge present; postocular setae capitate, longer than eye length. Pronotum transverse, with 5 pairs of capitate setae (anteromarginals sometimes shorter and pointed), notopleural sutures complete or very weakly incomplete. Mesonotal lateral setae minute; metanotum weakly reticulate, median setae slender and acute (Fig. 3). Fore tarsus of female without a tooth. Forewing weakly constricted medially, duplicated cilia absent; sub-basal setae long and capitate. Prosternal basantra well-developed, ferna abutting medially, mesopresternum broadly boat-shaped (Fig. 4); anterior margin of mesoeusternum slightly concave, with pale oval area medially bearing 4-6 stout pale setae (Figs 4-5); metathoracic sternopleural sutures absent, metasternum sometimes with several long pale setae medially. Pelta with paired campaniform sensilla; tergites II-VII with 2 pairs of sigmoid wing-retaining setae, anterior pair on each tergite weakly developed; lateral paired setae on tergites long and capitate; tergite IX setae S1 and S2 with apices bluntly pointed; tube shorter than head, anal setae shorter than tube.

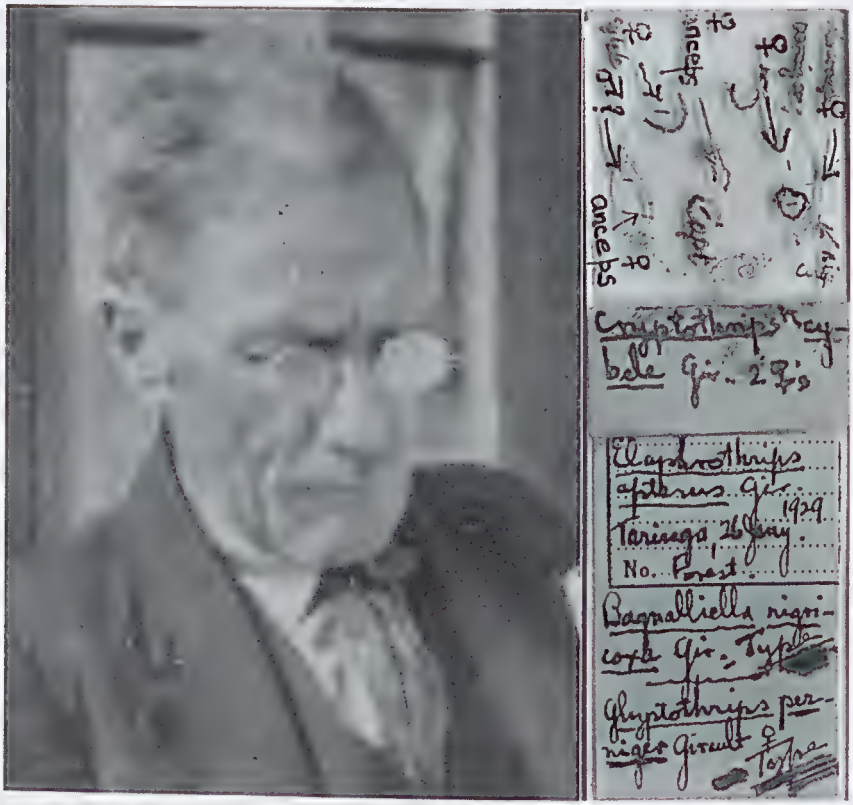
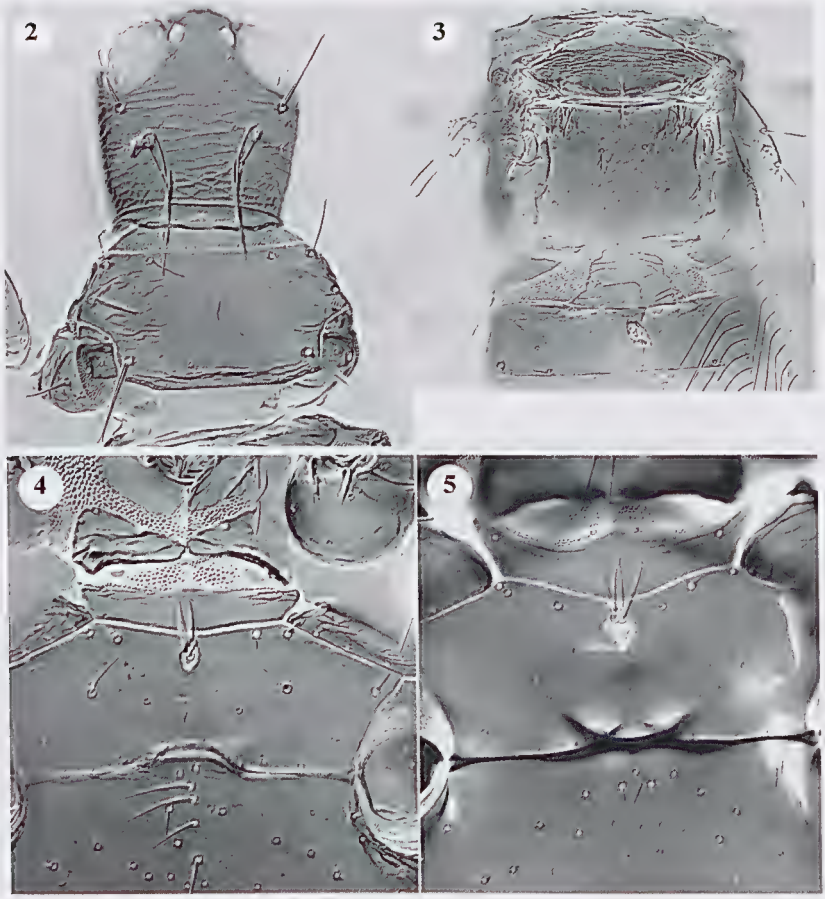


Fig. 1. A.A. Girault – the man and one of his microscope slides.



Figs 2-5. *Giraultithrips nigricoxa*: (2) head and pronotum; (3) meso and metanota and tergites I-I; (4) mesoeusternum of female from Canberra; (5) mesoeusternum of female from Lamington National Park.

Comments. The maxillary bridge, paired prosternal basantra and forewing median constriction all suggest that this is a member of the Haplothripini, despite the hesitation indicated by Mound and Minaei (2007). The lack of forewing duplicated cilia might suggest a relationship to *Haplothrips* (*Trybomiella*), but that group is best restricted to species with two sensoria on the third antennal segment. Moreover, the conspicuously reticulate vertex of *G. nigricoxa* (Fig. 2) is unlike the head of any known species worldwide in the tribe Haplothripini. The group of setae in the midline of the mesothoracic sternum is unique among Phlaeothripidae worldwide, but these setae are consistent in appearance among the available specimens.

Giraultithrips nigricoxa (Girault), comb. n.

(Figs 2-5)

Bagnalliella nigricoxa Girault, 1929: 3.

Haplothrips nigricoxae (Girault): Pitkin, 1973: 332.

Material examined. QUEENSLAND: Holotype ♀ on slide labelled: Taringa [Brisbane], Forest, 26.i.1929 [the published data stated Mt Cootha], in Queensland Museum, Brisbane (Fig. 1); 1 ♀, Brisbane, Indooroopilly, Long Pocket, from *Acacia* lvs, 26.vi.2008; 1 ♀, Lamington National Park, O'Reilly's, Moran Falls, from dead leaves, 4.viii.2013. AUSTRALIAN CAPITAL TERRITORY: 2 ♀♀, Canberra, Black Mt, from dead branch, ii.2010. NORFOLK ISLAND: 1 ♀, from dead *Elaeodendron* branches with lichen, 24.xii.2013.

This species was based on a single female but in recent years five more females have been collected. The colour and structural details of these specimens have been checked against the holotype, although that specimen is so poorly cleared that many details are difficult to discern or simply not visible. In colour, this species is light brown with the tube darkest and the legs are yellow or weakly washed with brown. Antennal segments I-III are largely yellow (brown in one specimen from Indooroopilly), with the other segments brown except for yellow pedicels on IV-V. The major setae are colourless or faintly brown. Despite the opacity of the holotype it is possible to discern the group of distinctive setae near the anterior margin of the mesoeusternum, also one long seta in the midline of the metasternum. Two females listed above from Canberra have four long stout setae in the group on the mesoeusternum and a median longitudinal row of three (or four) long and slender pale setae on the metasternum (Fig. 4). The female from Lamington National Park also has the group of four setae on the mesoeusternum but only two slender setae medially on the metasternum (Fig. 5). In contrast, the female from Norfolk Island has six stout setae in the group on the mesoeusternum but does not have any unusually long setae on the metasternum. The specimens from Lamington and Indooroopilly have the pronotal anteromarginal pair of setae shorter and pointed and the lateral abdominal setae bluntly pointed, but the female from Indooroopilly has a group of four long pale setae on the metasternum and is unusual in having the antennae almost uniformly brown except for the yellowish basal third of segment III.

The genus *Bagnalliella* Karny, in which Girault placed this species, comprises a group of Haplothripini that live on *Yucca* plants in southwestern USA. Those species all have a distinctive head with several grooves on the margins of the cheeks. In contrast, as noted above, the reticulate head of *G. nigricoxa* is unlike that of any known Haplothripini. Most species in this Tribe feed on floral tissues, although with a considerable number predatory (Mound and Minaei 2007), but on three occasions *G. nigricoxa* has been

taken from dead branches and dead leaves, suggesting that the species might be mycophagous.

Azaleothrips Ananthakrishnan

This Asian genus currently includes 10 species, of which one has recently been recorded from the Cobourg Peninsula in northern Australia (Mound and Dang 2013). Moreover, a full account of this genus, increasing the number of described species to 35, has recently been published by Okajima and Masumoto (2014). Species of *Azaleothrips* have elongate maxillary stylets that are close together medially within the head and retracted to the compound eyes. The major setae on the head and thorax are very broadly expanded, often as wide as long, and the postocular setae arise almost behind the inner margins of the compound eyes. These details are visible on the holotype of the species discussed below and it is therefore transferred to this genus. The body surface of the known species of *Azaleothrips* bears distinctively delicate and complex sculpture but the surface of the *A. perniger* holotype is completely obscured.

Azaleothrips perniger (Girault), comb. n.

Glyptothrips perniger Girault, 1929: 2.

Material examined. QUEENSLAND: Holotype ♀, in Queensland Museum, Brisbane. The original data were recorded by Girault as: Mt Cootha [Brisbane], forest, 26.i.1929, but on the slide bearing the holotype (Fig. 1) there are no associated data.

This species remains known only from the damaged holotype and this was probably teneral when captured. The specimen is pale brown, including all antennal segments, but there is extensive bright red internal pigment that is iridescent and obscures all surface detail of the head and thorax. The maxillary stylets are retracted to the eyes and are close together medially for the full length of the head. The postocular setae are short with the apex almost as wide as the setal length and the epimeral setae are similar in structure. The fore tarsi do not have a tooth. The forewings have no duplicated cilia and the sub-basal setae are similar to the lateral abdominal setae in having widely expanded, fringed and asymmetric, apices. The two dorsal pairs of major setae on tergite IX are slender and capitate. The only available antenna is dissociated from the body of the specimen but has segments VII and VIII fused, with no trace of a suture, and there are two sensoria on each of segments III and IV. The only known member of *Azaleothrips* with similar antennal structure is *A. moundi* Okajima, from southern Japan and Taiwan, but that has a dark brown body with the third antennal segment yellow.

Although described by Girault in *Glyptothrips* Hood, the species of that genus are found only in North and South America and all of them have the head strongly reticulate with the postocular setae wide apart (Mound 1977).

References

ABRS. 2014. *Australian Faunal Directory. Thysanoptera*. Australian Biological Resources Study, Canberra. [Accessed 14 May 2014]. <*http://www.environment.gov.au/biodiversity/abrs/onlineresources/fauna/afd/taxa/THYSANOPTERA*>

GIRAULT, A.A. 1929. *Description of a case of lunacy in* Homo *and of new six-legged articulates*. Published privately, Brisbane; 4 pp.

GORDH, G., MENKE, A.S., DAHMS, E.C. and HALL, J.C. 1979. The privately printed papers of A.A. Girault. *Memoirs of the American Entomological Institute* **28**: 1-400.

MOUND, L.A. 1977. Species diversity and the systematics of some New World leaf-litter Thysanoptera (Phlaeothripinae; Glyptothripini). *Systematic Entomology* **2**: 225-244.

MOUND, L.A. 2014. Austral Thysanoptera: 100 years of progress. *Austral Entomology* **53**: 18-25.

MOUND, L.A. and DANG, L.-H. 2013. New Australian records of Asian or New Zealand Phlaeothripidae (Thysanoptera). *Australian Entomologist* **40**(3): 113-117.

MOUND, L.A. and MINAEI, K. 2007. Australian insects of the *Haplothrips* lineage (Thysanoptera – Phlaeothripinae). *Journal of Natural History* **41**: 2919-2978.

OKAJIMA, S. and MASUMOTO, M. 2014. Fungus-feeding thrips of the species-rich Oriental genus *Azaleothrips* (Thysanoptera, Phlaeothripidae). *Zootaxa* **3846**(3): 301-347.

PITKIN, B.R. 1973. A revision of the Australian Haplothripini, with descriptions of three new species (Thysanoptera: Phlaeothripidae). *Journal of the Australian Entomological Society* **12**: 315-339.

THRIPSWIKI. 2014. *ThripsWiki - providing information on the World's thrips*. [Accessed 14 May 2014]. <*http://thrips.info/wiki/Main_Page*>